



*Better Buildings Residential Network
Peer Exchange Call Series*

The State of Home Labeling and Residential Energy Efficiency

June 9, 2022

Agenda and Ground Rules

- Agenda Review and Ground Rules
- Opening Poll
- Residential Network Overview and Upcoming Call Schedule
- Featured Speakers
 - **Madeline Salzman**, U.S. Department of Energy
 - **Maddie Koewler**, National Association of State Energy Officials (NASEO)
 - **Kate Donatelli**, State of Connecticut
- Open Discussion
- Closing Poll and Announcements

Ground Rules:

1. **Sales of services and commercial messages are not appropriate** during Peer Exchange Calls.
2. Calls are a safe place for discussion; **please do not attribute information to individuals** on the call.

The views expressed by speakers are their own, and do not reflect those of the Dept. of Energy.

Join the Network

Member Benefits:

- Recognition in media, social media and publications
- Speaking opportunities
- Updates on latest trends
- Voluntary member initiatives
- One-on-One brainstorming conversations

Commitment:

- Members only need to provide *one number*: their organization's number of residential energy upgrades per year, or equivalent.

Upcoming Calls (2nd & 4th Thursdays):

- 6/23: *Coming Soon: Innovations Heading to the Residential Efficiency Market from the DOE Advanced Building Construction (ABC) Initiative*
- 7/14: *What's Working in Local Residential Efficiency Policies?*
- 7/28: *Understanding Clean Heat Standards – What Is the Lay of the Land?*

Peer Exchange Call summaries are posted on the Better Buildings [website](#) a few weeks after the call

For more information or to join, for no cost, email bbresidentialnetwork@ee.doe.gov, or go to energy.gov/eere/bbrn & click Join



Madeline Salzman
U.S. Department of Energy



Home Energy Score™ Program

Madeline Salzman
Management & Programs Analyst
Building Technologies Office



The Residential Efficiency Market is Broken



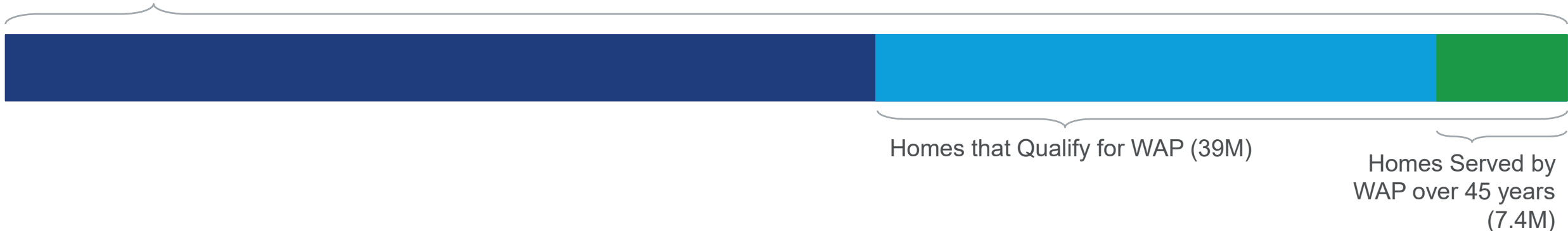
Meanwhile, **energy burdens** are high for many residents –

- ✓ Nearly **one-third** of U.S. households reported facing a challenge in paying energy bills or sustaining adequate heating and cooling in their homes (*EIA 2015*)
- ✓ About **one in five** households reported reducing or foregoing necessities such as food and medicine to pay an energy bill (*EIA 2015*)
- ✓ The **most common reason** reported for individuals seeking payday loan products is to pay their utility bills (*FDIC 2012*)

Status of U.S. Housing & Households

- 50% of U.S. homes are **over 40 years old**, meaning they were built before building energy codes
- 41% of households are estimated to be **income-qualified** for the Weatherization Assistance Program
- 20% of single-family homes are **renter-occupied**, meaning they often don't have access (or incentive) to pursue efficiency offered by utility programs
- 91% of single-family homes **do not use a heat pump** for heating, and 68% burn fossil fuels onsite for heating
- 46% of single-family homes have **no wall insulation**
- The median American household had **\$11,700 in savings** in 2018, and 29% of households have less than \$1,000 in savings.

Single-family Homes in the US (88M)



Money Going Toward Housing Each Year

\$1.8 Trillion

Average annual mortgage origination 2009-2019



\$1.1 Billion

Annual WAP budget

\$3 Billion

Annual utility spending on
residential energy efficiency
programs

0.18%

Of annual mortgage
origination

Home Energy Score™ Program



Goal: Build market value for home energy efficiency through standard data and metrics that are applicable to all existing homes.



Target Markets

- ✓ Existing single-family homes
- ✓ Townhomes



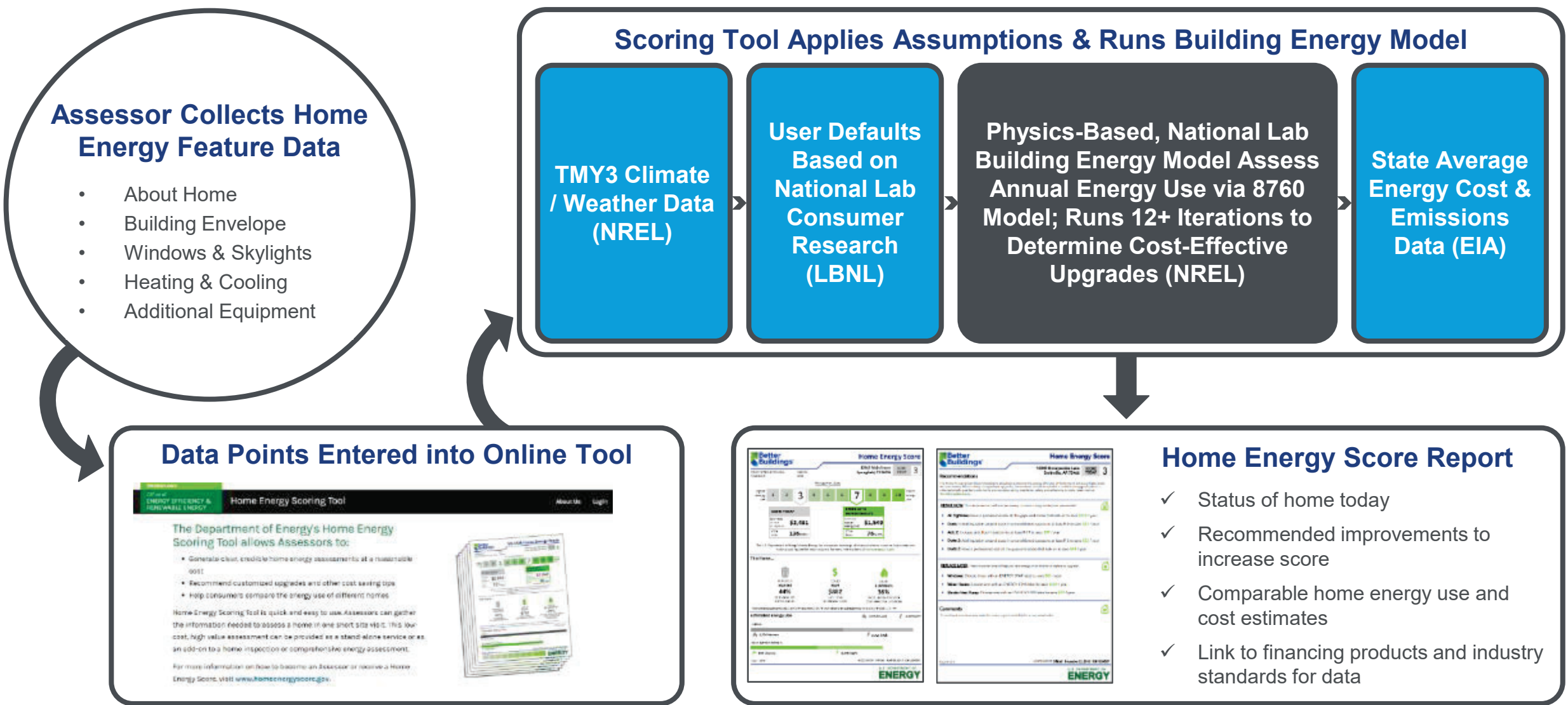
Focus Areas

- ✓ Consumer education
- ✓ Data aggregation
- ✓ Real estate integration

U.S. DEPARTMENT OF ENERGY
Home Energy Score

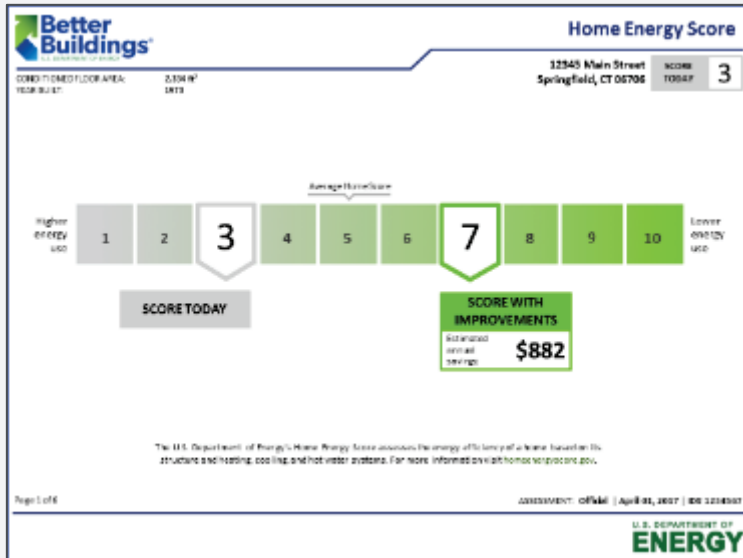


Schema of Home Energy Score Calculation



Methods For Market Transformation

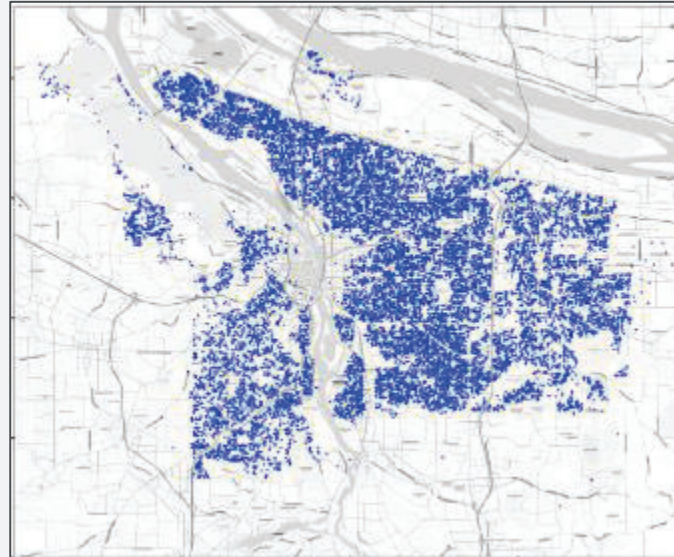
Consumer Education



Home Energy Score

- ✓ Improve consumer energy literacy
- ✓ Better understanding of home energy use, associated costs
- ✓ Roadmap to reduce energy use
- ✓ Link to low-interest financing products

Data Aggregation



Scores in Portland, Oregon

- ✓ Consistent information on home features, energy use
- ✓ Target program upgrades, incentives
- ✓ Track impacts, analyze efficiency gains
- ✓ Drive real estate market interest

Real Estate Integration



Mock Up Real Estate Listing, courtesy ACEEE

- ✓ Allow valuation of efficiency features in real estate transactions
- ✓ Enable mortgage financing products to scale efficiency deployment
- ✓ Create pull market for efficiency & solar

Home Energy Score as a Tool for Knowledge, Valuation, Financing

10



Higher Scoring Homes

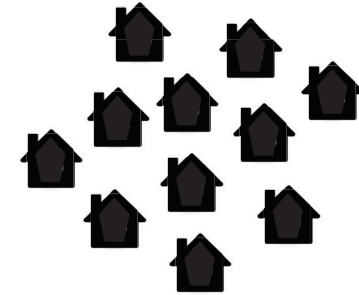
- ✓ Provide **market recognition** of energy features & resultant lower energy costs
- ✓ **Appraise value** of efficiency features & recoup investment in sale

1



Lower Scoring Homes

- ✓ **Recommendations** to improve efficiency
- ✓ Link recommendations to **low-cost financing & incentives**
- ✓ **Transparency** for buyers, renters about expected energy costs



Aggregate Score Data

- ✓ Effectively leverage **private capital** for home decarbonization financing
- ✓ **Track progress** toward decarbonization goals in housing
- ✓ **Identify target markets** for efficiency programs, incentives
- ✓ Compare asset data to utility data to determine **needs for decarbonization**
- ✓ Establish a **standard** for home energy assets for existing homes, rentals

Home Energy Score Adoption Nationwide

185,000+

Home Energy Scores

400+

Qualified Assessors

100+

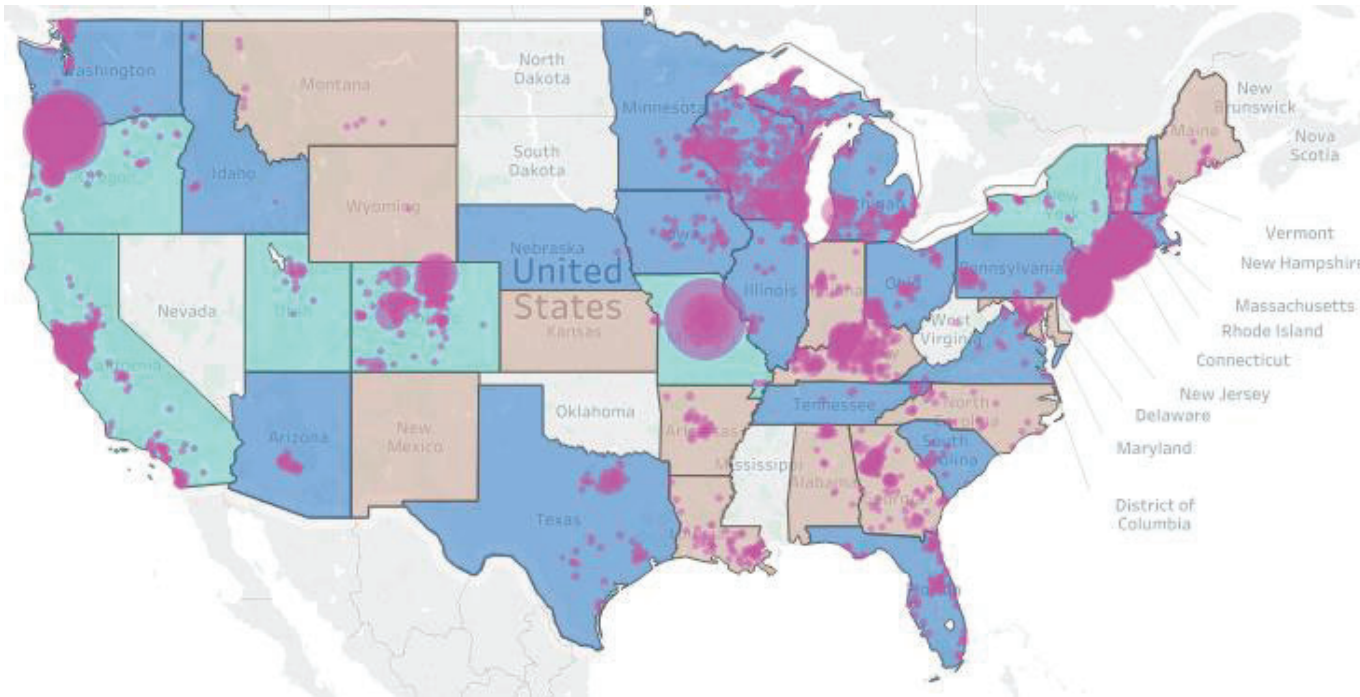
Small & Medium Businesses

25+

States with Active Assessors

10+

API-Linked Tools



Home Energy Score is integrated into –

- ✓ **Infrastructure Investment & Jobs Act (IIJA)** revolving loan fund program requirements
- ✓ **Fannie Mae & Freddie Mac** home energy efficiency mortgage loan products
- ✓ **Technical Resource Manual** (TRM) in New York
- ✓ **Climate Action Plans** and/or state & local programs in Oregon, Nevada, Massachusetts, Utah, California, Colorado, Missouri, Connecticut, Delaware
- ✓ **Utility program** standard offerings in Delaware, Missouri, Massachusetts, New Jersey, Colorado, Connecticut

Home Energy Scores by Zip Code States with Active Assessors

State/Local Score Policies & Active Assessors

States with Inactive Assessors

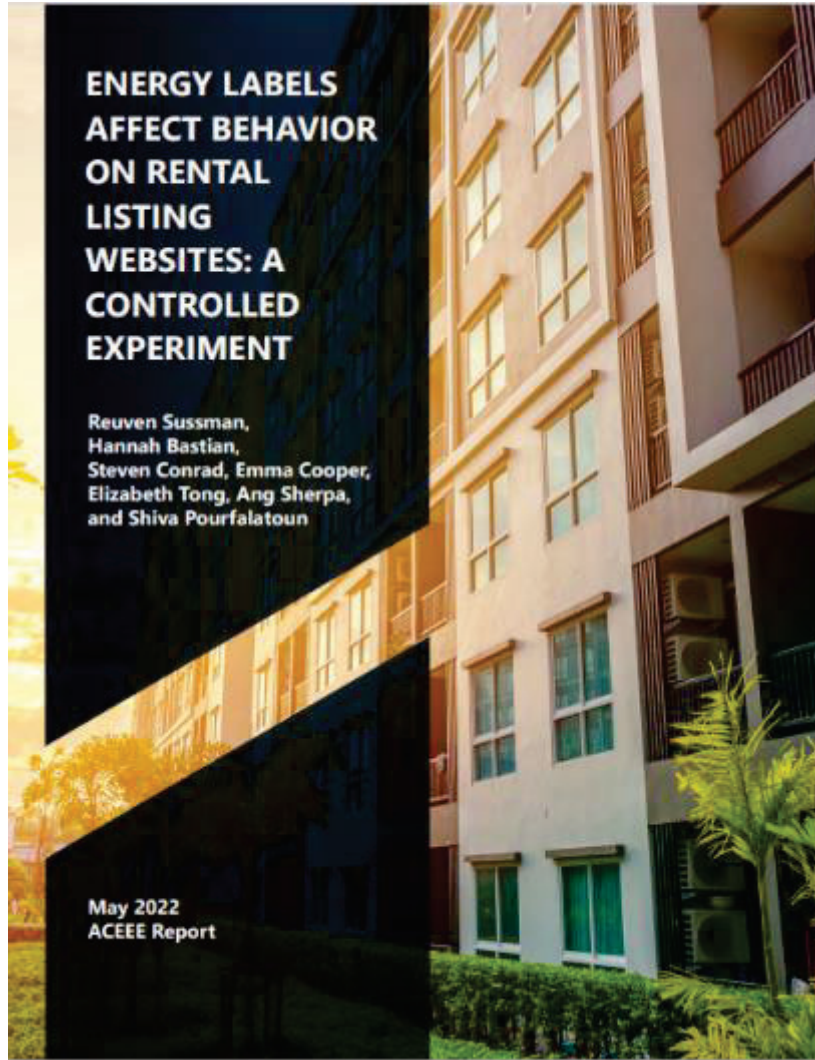
Supporting Lower Income Homeowners, Buyers, Renters

Coordinated Policies and Programs



- ✓ Low-income residents face high energy burdens & have greater potential to benefit from understanding home energy performance
 - *Rental properties are particularly underserved in terms of efficiency equipment & programs*
- ✓ Home Energy Score enables low-income homeowners to realize resale benefits of higher home value
- ✓ Lenders can link Home Energy Score & recommendations to financing products to help homes improve
 - *Older, smaller, low-income homes have the most cost-effective potential to increase energy performance*
- ✓ Efforts reduce false association that efficient/green homes are only for wealthy

Latest Research Findings



- Energy labels on a mock rental listing website encouraged renters to select the most efficient listings 21% more often
- Showing listings with a Home Energy Score and the corresponding scale and estimated energy costs led to higher “click” rates of energy efficient properties
- Builds off previous research (ACEEE, 2020) which showed similar findings for prospective home buyers on a mock real estate listing website
- Forthcoming research from LBNL is finding similar results from historical analysis of actual Home Energy Scores (to be published for ACEEE Summer Study, 2022)

“We study the effects of requiring home sellers to provide buyers with certified audits of residential energy efficiency. Using similar nearby homes as a comparison group, we find this requirement **increases price premiums for energy efficiency** and **encourages energy-saving investments**. We additionally present evidence highlighting the market failure (incomplete information by both buyers and sellers) that prevents widespread voluntary disclosure of energy efficiency in housing transactions. Our findings support that **disclosure policies can improve market outcomes** in settings with symmetrically incomplete information.”

--Myers, E., Puller, S., and West, J. (forthcoming). *Mandatory Energy Efficiency Disclosure in Housing Markets*. *American Economic Journal*

Join Our Team of Partners Around the Country!

- Check out our website: <https://betterbuildingssolutioncenter.energy.gov/home-energy-score>
- To become a partner, fill out an implementation plan and submit to HomeEnergyScore@ee.doe.gov:
https://betterbuildingssolutioncenter.energy.gov/sites/default/files/attachments/HES_Partner_Implementation_Plan_Template.pdf
- Have specific questions? Reach out to HomeEnergyScore@ee.doe.gov and someone from our team will follow up with you.



Thank You!

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Maddie Koewler
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National Association of
State Energy Officials

Home Energy Labeling: Introduction and Opportunities

Maddie Koewler, NASEO
Photo Courtesy of RL Martin

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About NASEO

- The only national non-profit association for the governor-designated energy officials from each of the 56 states and territories
- Serves as a resource for and about the State Energy Offices through topical committees, regional dialogues, and informational events that facilitate peer learning, best practice sharing, and consensus building
- Advances the interests of the State and Territory Energy Offices before Congress and the Administration
- Learn more at www.naseo.org

NASEO Programs and Priorities



Buildings



Electricity



Climate



Financing



Workforce



Resilience



Equity



Planning



Innovation



Transportation



Solar



Policy



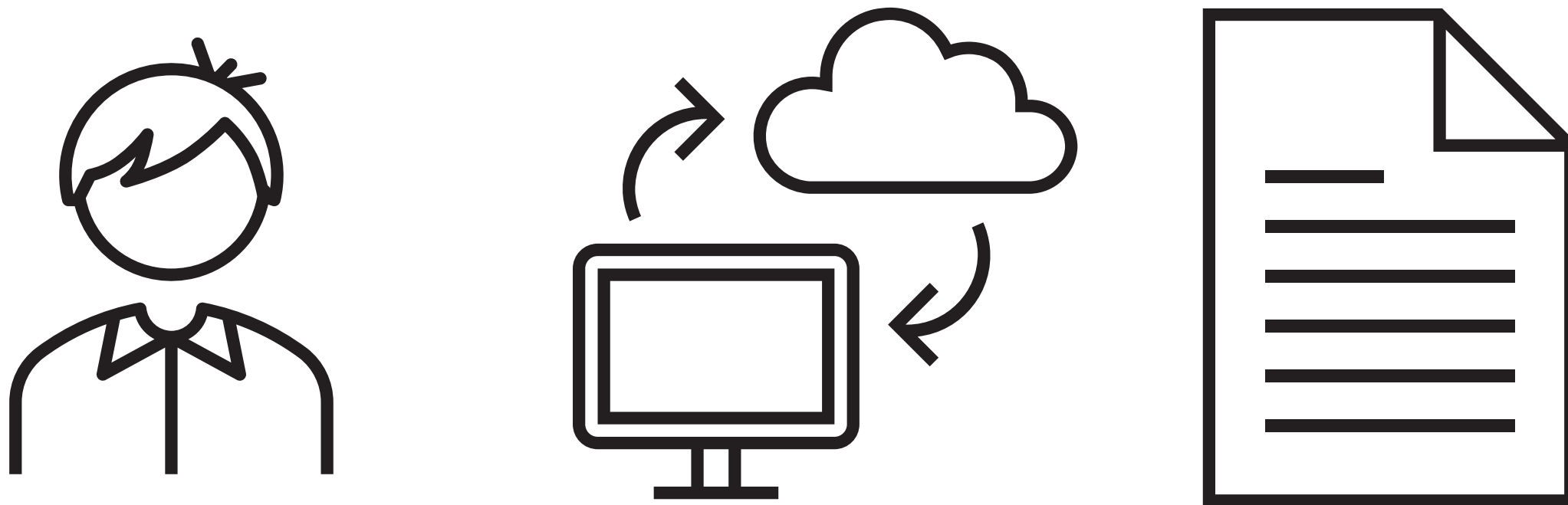
Why a home
energy label?

Insight

- Home performance
- Quality of energy systems
- Improvement recommendations
- Easy to understand metric

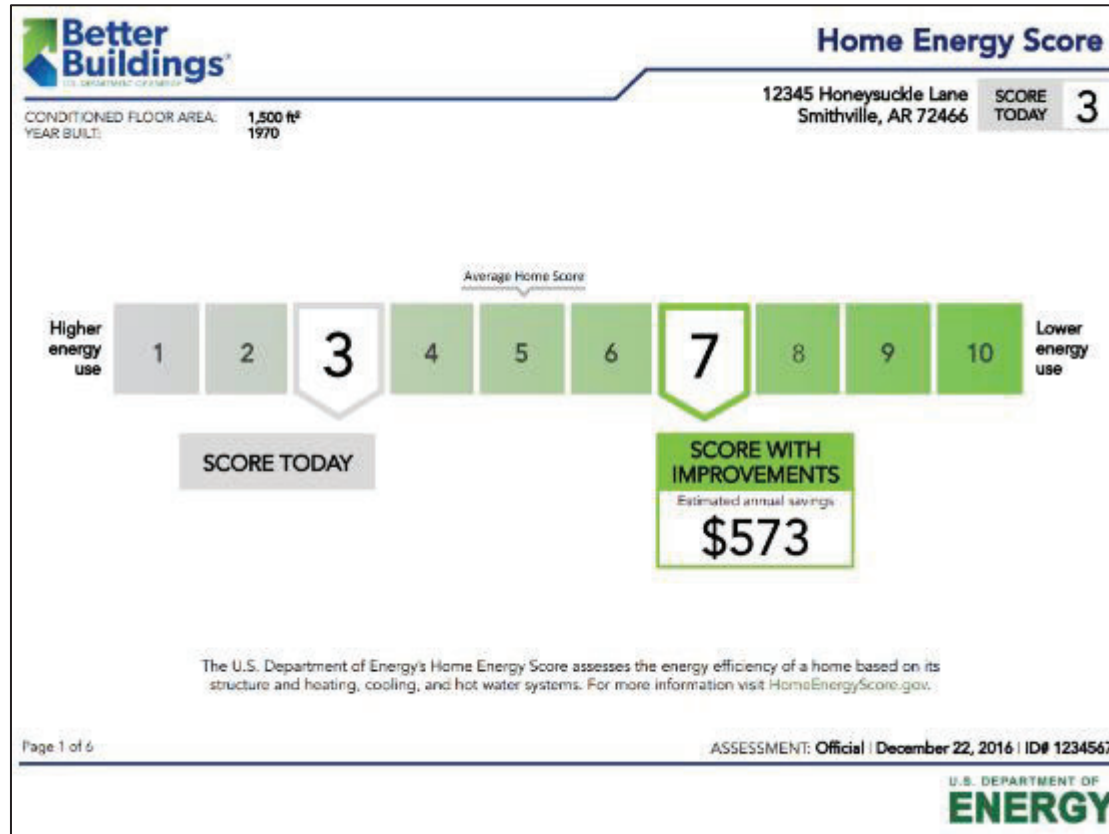


Image source: ENERGY STAR

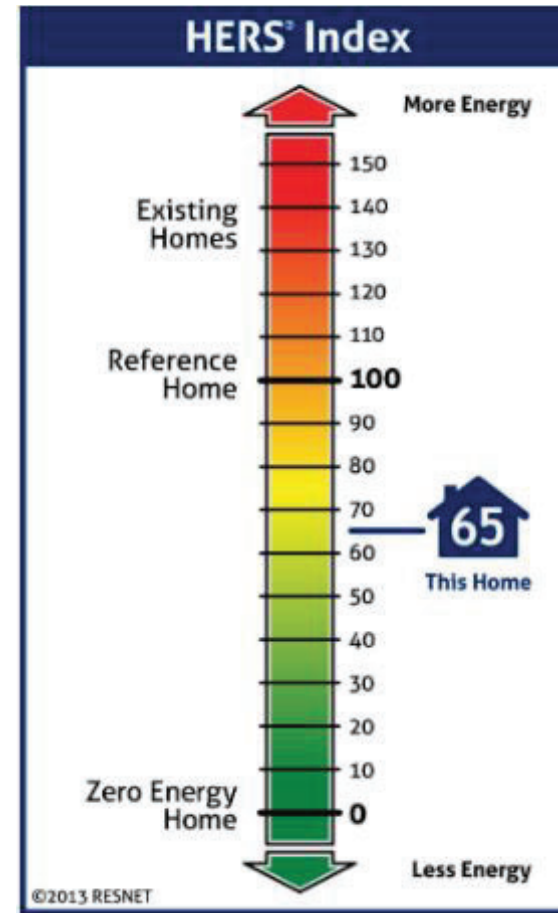


How does it work?

Examples

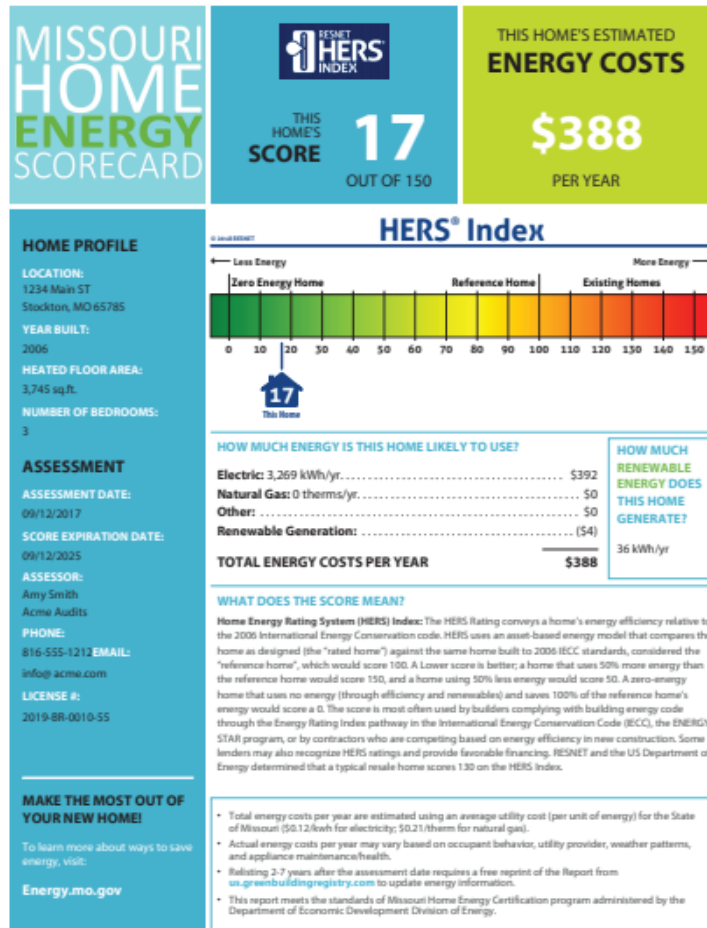


Source: U.S. Department of Energy



Source: RESNET

Examples

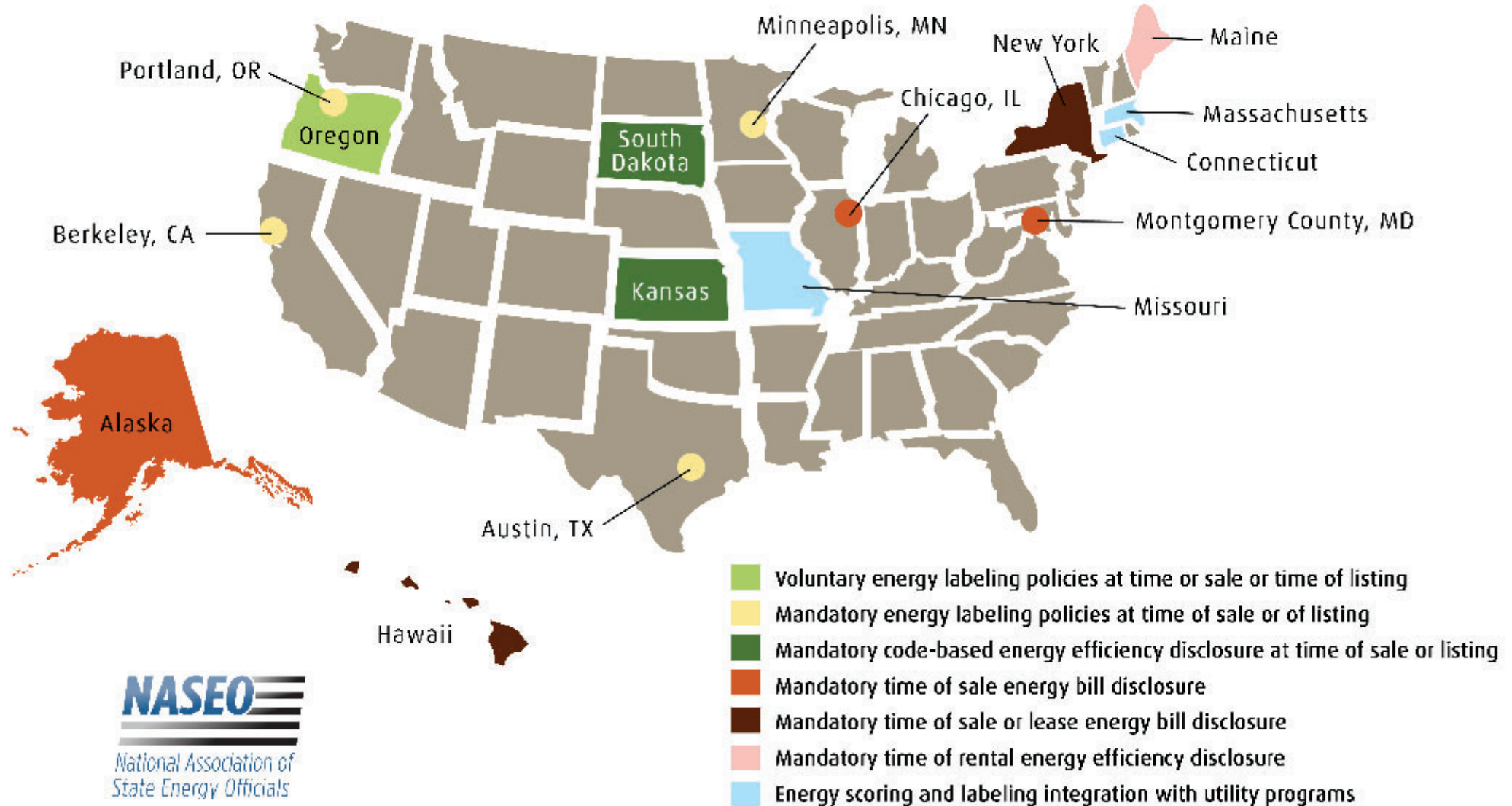


Source: State of Missouri



Source: City of Portland

Residential Energy Disclosure Policies in States and Cities



Key Policy Considerations

Mandatory vs. Voluntary Programs

	Pro	Con
Mandatory	Achieve higher levels of real estate market penetration.	Traditionally have faced resistance from real estate stakeholders.
Voluntary	Traditionally has been easier to generate support.	Lower levels of market penetration, require incentives and marketing to drive demand.

Start-Up and Implementation Plan

Program Management

Stakeholder Engagement

Multi-Year Budget & Funding

Software Integration

Label Format

Workforce

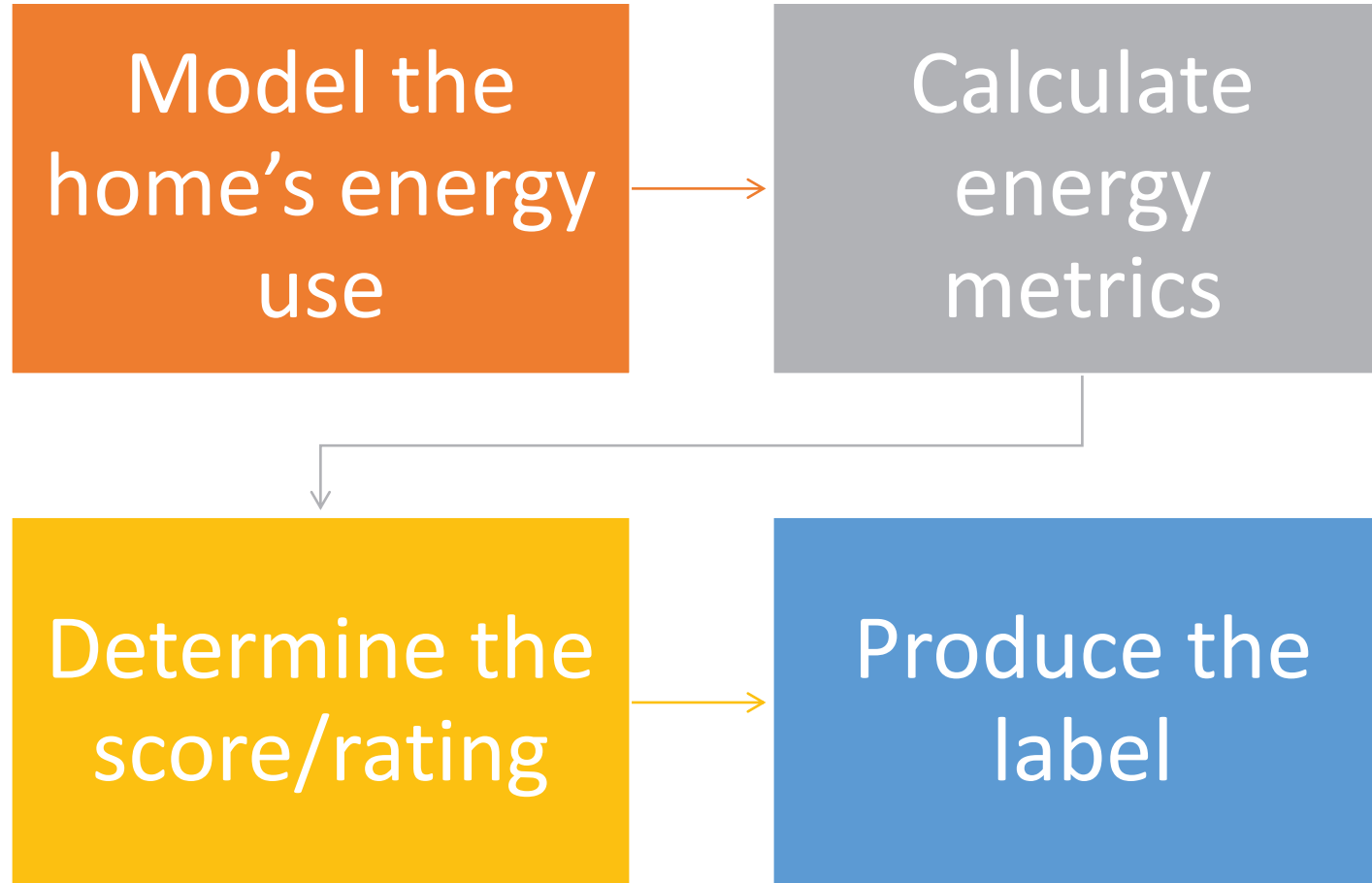
MLS Integration

Define Label Components

What metrics are valuable to your stakeholders?

Which tool can provide the metrics you need?

Software and IT Path



Training Professionals

Who will conduct assessments?

What training will be required?

How will quality be ensured?

Educating Real Estate Professionals

- Better market properties.
- Empower buyers to make better informed investments.
- Promote wiser use of energy in homes.
- Be able to identify which home features provide energy efficiency.
- Create a healthier living environment.



Linking with MLSs

Database updates to make energy labels
available to users.



Thank you!

Maddie Koewler

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Kate Donatelli
State of Connecticut



BUREAU OF ENERGY AND
TECHNOLOGY POLICY

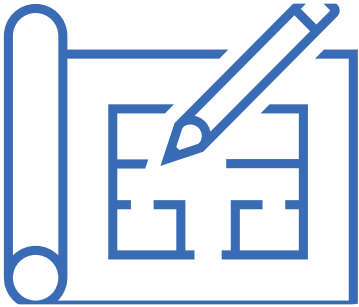
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Home Labeling and Residential Energy Efficiency in Connecticut

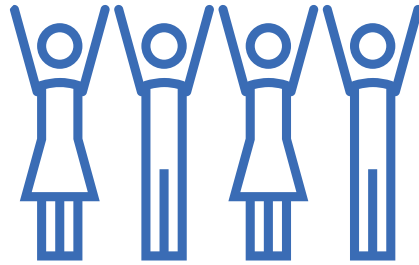
Better Buildings Peer Exchange



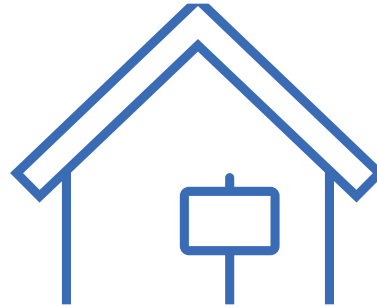
Home Energy Labeling Strategies



Program
Support



Education and
Outreach



Market
Integration



Policy

Program Support – Energize CT

- Created in 1998 by the Connecticut Legislature
- Ratepayer-funded initiative dedicated to empowering Connecticut to make smart energy choices, save money, and use clean, affordable energy.
- Managed and administered by:
 - The Connecticut Energy Efficiency Board
 - The Connecticut Department of Energy and Environmental Protection
 - The Connecticut Green Bank
 - Eversource
 - Avangrid



BUREAU OF ENERGY AND
TECHNOLOGY POLICY



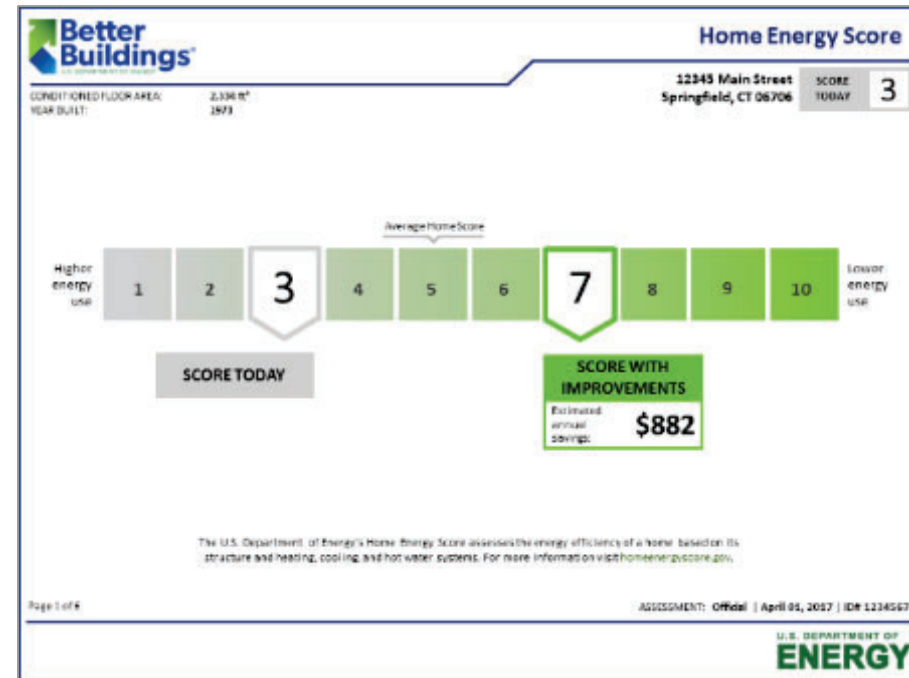
Program Support - Home Energy Solutions

- In-home weatherization program that includes an energy assessment and direct installation of measures, including:
 - Blower door guided air sealing
 - HVAC flow tests and duct sealing
 - Water-saving measures
 - DOE Home Energy Score
- Recommendations and rebates for deeper energy-savings measures such as:
 - Insulation
 - HVAC equipment
 - Windows
 - Heat pumps



Program Support - Home Energy Score

- Home Energy Scores are available to all Home Energy Solutions and Home Energy Solutions-Income Eligible participants at no additional cost
- In 2022, participants will have the option to receive a new “Final Score” after completing recommended upgrades
 - Virtual Final Scores within 12 months
 - In-person Final Scores within 24 months

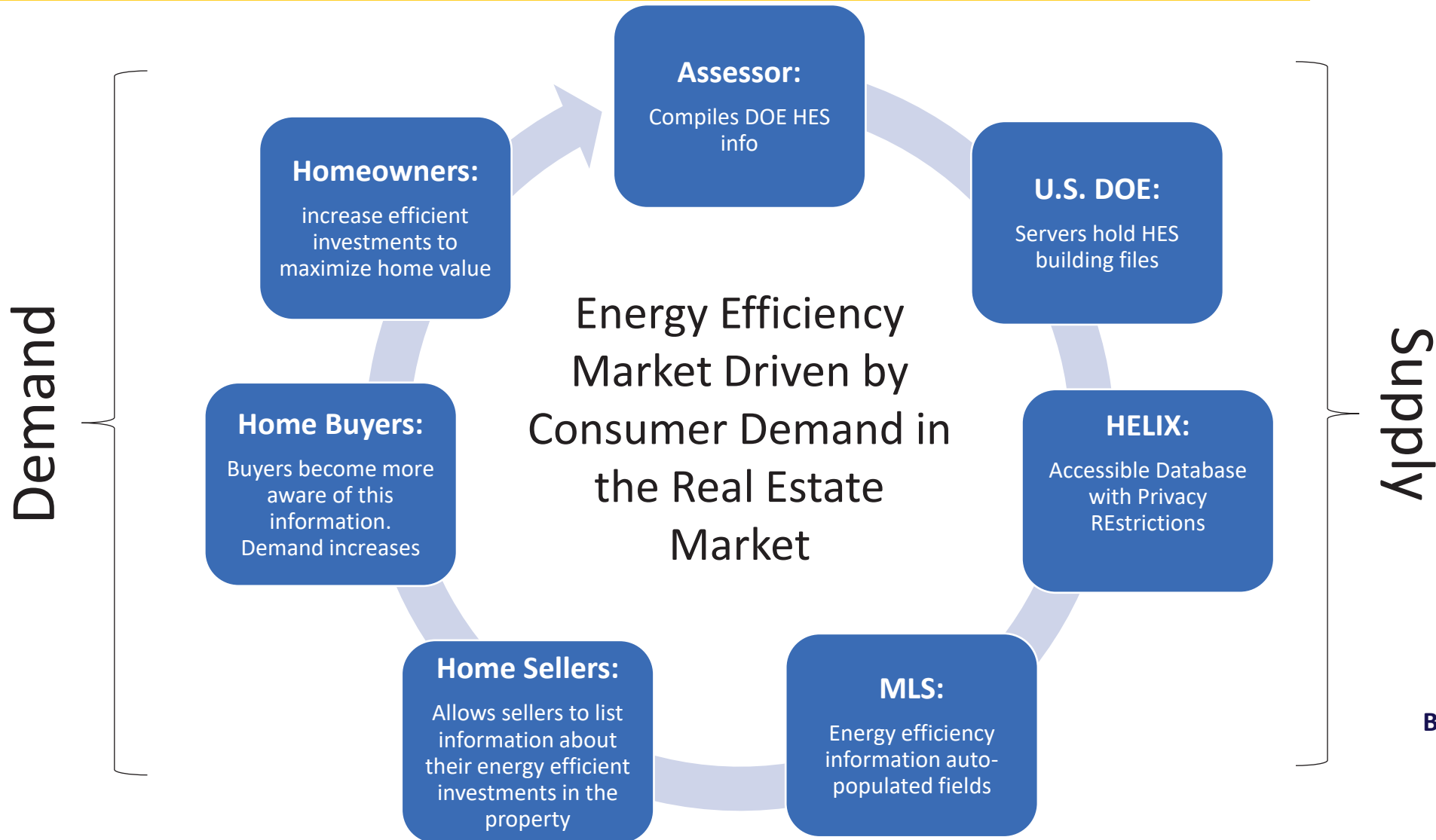


Education and Outreach

- Held realtor training courses, offered for continuing education credit
- Building Decarbonization Fellow to work on developing additional trainings on integrating information on energy efficiency, renewables, and resiliency into real-estate transactions

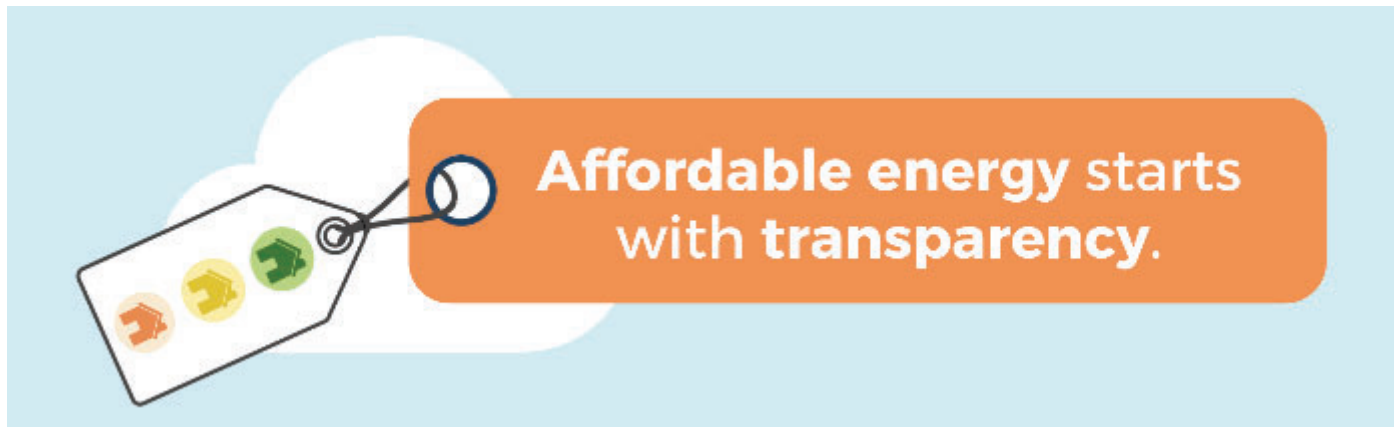


Market Integration



Home Energy Labeling Policy

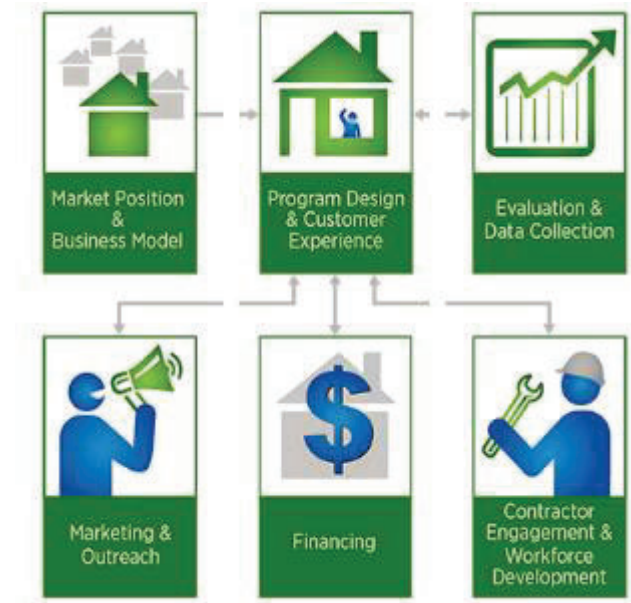
- 2022 Legislative Proposals: *Acts Concerning Energy Affordability for Home Buyers and Renters*
 - Time of sale or rental home energy labeling requirement
 - Phased in over time, starting in areas with highest energy burdens



Explore the Residential Program Solution Center

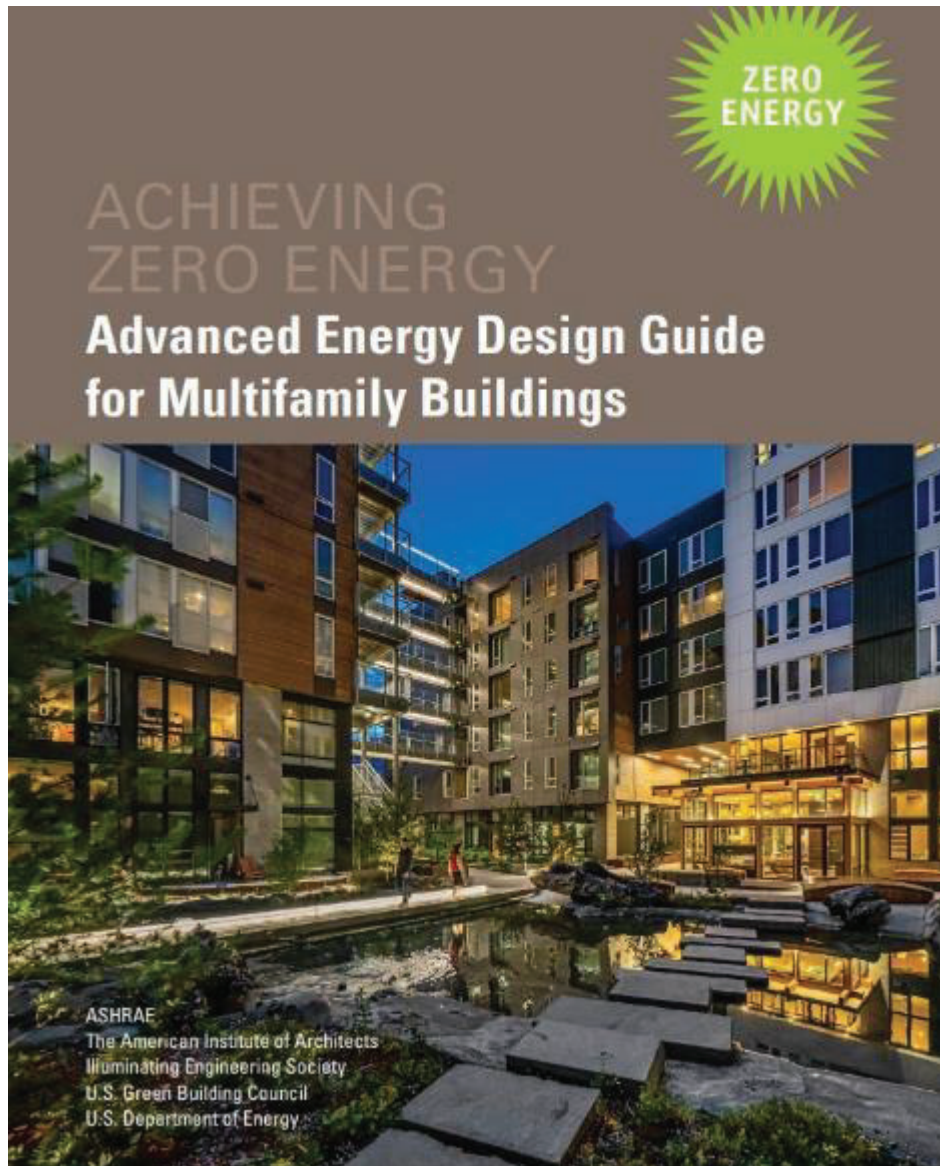
Resources to help improve your program and reach energy efficiency targets:

- [Handbooks](#) - explain *why* and *how* to implement specific stages of a program.
- [Quick Answers](#) - provide answers and resources for common questions.
- [Proven Practices](#) posts - include lessons learned, examples, and helpful tips from successful programs.
- [Technology Solutions](#) **NEW!** - present resources on advanced technologies, **HVAC & Heat Pump Water Heaters**, including installation guidance, marketing strategies, & potential savings.
- [Health + Home Performance Infographic](#) **NEW!** – spark homeowner conversations.



<https://rpssc.energy.gov>

Zero Energy Advanced Energy Design Guide for Multifamily Buildings



This Guide demonstrates that zero energy multifamily buildings are attainable and provides design teams with strategies for achieving energy savings goals that are financially feasible, operationally workable, and readily achievable.

The Guide offers direction for designing and constructing zero energy multifamily buildings in all climate zones through recommendations, strategies, and solution packages.

Now available for free download through ASHRAE
<https://www.ashrae.org/technical-resources/aedgs/zero-energy-aedg-free-download>

New Health + Home Performance Infographic



Do You Have a “Healthy Home?”

A qualified contractor can help you assess and address indoor air quality, improve your comfort, and cut your utility bills.

Answers to a few basic questions can help you get started:

- **How old are your heating and cooling systems?**
Ensuring your system is updated and well maintained can save money and improve health and comfort.
- **Is your home insulated?**
Properly installed insulation in your walls and attic, at levels recommended for your home's climate, will cut bills, and improve comfort.
- **Have you ever noticed mold in your home?**
Visible mold likely means humidity levels need to be better addressed or indicates a potential leak or water damage.
- **Are your windows caulked and doors weather-stripped?**
These relatively simple fixes reduce air leaks and help maintain indoor temperature levels.
- **Are your appliances ENERGY STAR® rated?**
ENERGY STAR appliances are energy efficient and help you save money.
- **Do you know if your home's heating and cooling systems include proper levels of ventilation?**
Effective ventilation is important for both health and safety. Ventilation, along with frequently replaced air filters, can help make sure your home is bringing in fresh air as needed, and keep out pollutants when outdoor air quality is poor due to ozone, fire, or other factors.

GET started

FIND A QUALIFIED CONTRACTOR:

- Home Performance with ENERGY STAR® at ENERGYSTAR.gov/HomePerformance
- Building Performance Institute at bpi.org/locator-tool

U.S. DEPARTMENT OF ENERGY | OFFICE OF ENERGY EFFICIENCY & RENEWABLE ENERGY
BUILDING TECHNOLOGIES OFFICE

DOE/EE-2349

HOME PERFORMANCE WITH ENERGY STAR

DOE’s new Health + Home Performance Infographic reveals the link between efficiency and health – something everyone cares about. Efficiency programs and contractors can use the question-and-answer format to discover a homeowner’s needs.

The infographic is ideal for the “kitchen table” conversations where people decide what to do – and who they want to do it. It also has links for homeowners to find a qualified contractor if they do not already have one.

[Download](#) this infographic from DOE’s Better Buildings Residential Network.

Thank You!

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Please send any follow-up questions
or future call topic ideas to:
bbresidentialnetwork@ee.doe.gov